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Westerman et al.

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(54) **ELLIPSE FITTING FOR MULTI-TOUCH SURFACES**

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See application file for complete search history.

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(57) **ABSTRACT**

Apparatus and methods are disclosed for simultaneously tracking multiple finger and palm contacts as hands approach, touch, and slide across a proximity-sensing, multi-touch surface. Identification and classification of intuitive hand configurations and motions enables unprecedented integration of typing, resting, pointing, scrolling, 3D manipulation, and handwriting into a versatile, ergonomic computer input device.

35 Claims, 45 Drawing Sheets